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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PHAM, BRENDA H	

ART UNIT	PAPER NUMBER
2616	

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09/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/685,621	BRYANT ET AL.	
	Examiner	Art Unit	
	Brenda Pham	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,10-12,16-24,27-29 and 32-34* is/are rejected.

7)☐ Claim(s) *8-9,13-15,25-26,30-31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-34 are pending in the application.

Claim Objections

2. Claims 1, 17 and 18 are objected to because of the following informalities: Claims 1, 17 and 18, line 2 recites "having as elements nodes" should be corrected to "having element nodes". Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-7, 10-12, 16-24, 27-29 and 32-34 are rejected under 35 U.S.C. 102(e) as being anticipated by **Harper (US 7,058,016 B1).**

Regarding claims 1, 18, **Harper** discloses an apparatus and method of generating routing information in a data communications network having element nodes and links, the method comprising the steps performed at a first network element of:

receiving at the first network element information relating to a change in the network at a second network element, determining a set of network elements affected

by the change in the network, identifying a sequence for updating of routing information at each element in the affected set, and updating the routing information at the first element in sequence (FIG. 3 and column 5, lines 30-50).

Regarding claims 2 and 19, **Harper** further teaches determining if the updated routing information differs from the routing information prior to the network change and maintaining the prior routing information at the first network element upon receipt of the information relating to the change if not.

Harper teaches "an incremental Dijikstra's algorithm can incorporate changes to the information about individual links in an optimized way, without examining every node. Nodes with new route information (Link State Packets) are sorted into order of cost from the current node (the root). Each change in state is then evaluated. If it has no effect on existing routes it is ignored. If it improves existing routes, the routes are re-evaluated starting from the changed node. If existing routes are lost or made worse, the entire subtree from the affected link is re-evaluated. Each node is reattached at the best (lowest cost) point in the remaining spanning tree. If possible, and routes re-evaluated starting from the nodes that have been reattached. The effect is equivalent to running the full Dijkstra algorithm, at a much lower computation cost." (column 5, lines 30-45).

Regarding claims 3 and 20, wherein the first network element updates after a delay derived from the updating sequence **(if the existing routes need re-evaluated or running a full Dijkstra algorithm (see column 5, line 30-45), a delay is inherently added to the routers for processing a new spanning tree before updating the routing table).**

Regarding claims 4 and 21, **Harper** further teaches determining, as an affected set, the set of nodes from which a target network element is reachable via the second network (Nodes with new route information (the root or first network element) re-evaluated new routes starting from the changed node (second network element).

Regarding claims 5 and 22, **Harper** teaches the second network element is a link and the target network element is an adjacent node (see figure 9).

Regarding claims 6 and 23, **Harper** teaches updating the first network element upon receipt of the information relating to the change if the first network element is not in the affected set (New information received **(SET new links to the new links state information (step 102) of FIG. 3 result of an update the link state database).**

Regarding claims 7, 10, 12, 24, 27 and 29, wherein the delay is a function of the number of hops from the first network element to the furthest network element in the

affected set (see column 5, lines 30-50, a longer delay is needed for running the full Dijkstra's algorithm based on the number of nodes (subtree or entire spanning tree).

Regarding claims 16 and 33, **Harper** further teaches receiving a notification from a preceding network element in the sequence and updating the routing information upon receipt of the notification. **(According to column 4, line 53-60, When router 16 is booted, its first task is to learn who its neighbors are. If accomplishes this goal by sending a special HELLO packet on each point-to-point line. The router 16 on the other end is expected to send back a reply telling who it is. Once the information needed for the exchange has been collected, the next step is for each router to build a packet containing all of this data. The packet (a Link State Packet) starts with the identity of the sender, followed by a sequence number...The link state database is synchronized by having the routers exchange LSPs to build the link state database...The router's links state database is thus updated.)**

Regarding claims 17 and 34, **Harper** teaches a computer readable medium comprising one or more sequences of instructions for a data communications network having element links and nodes, which instructions, when executed by one or more processors, cause the one or more processors to perform the steps of the method of any of claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15, (see figure 2, column 3-4, lines 60-67, 1-10, respectively.)

Regarding claims 11 and 28, wherein the change in the second network element comprises a link cost increase and the affected set comprises the set of network elements from the target network element is reachable prior to the network change **("The link state change results in bad news if the node's current path to the root becomes more expensive (including the case where it is no longer available at all). In this case there may be a better route via a different parent. (column 6, lines 10-20).**

Regarding claim 29, wherein the change in the second network element comprises a link cost decrease and the affected set comprises the set of network elements from which the target network element is reachable after the network change **("For each link in current LSP the cost to the neighbor via this node is calculated (i.e. costToRoot phus the link cost), (step272). If this cost is less than the neighbor's current cost (including the case where the neighbor is not yet reachable), the current node is set as the neighbor's only parent, its costToRoot is set, and its is added to Tent in the appropriate position. (column 9-10, line 65-67, 1-10, respectively.)**

Allowable Subject Matter

5. Claims 8, 9, 13-15, 25, 26, 30, 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Seid (US 5,754,543) discloses connectivity matrix-based multi-cost routing.

Humblet (US 4,987,536) discloses communication system sending an identical routing tree to all connected nodes to establish a shortest route and transmitting messages thereafter.

Harper (US 7,016,313 B1) discloses method and apparatus for generating network topology information.

Rodriguez-Moral (US 6,260,072 B1) discloses method and apparatus for adaptive routing packet in packet networks.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brenda Pham whose telephone number is (571) 272-3135. The examiner can normally be reached on Monday-Friday from 9:00 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild, can be reached on (571) 272-2092.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.

August 8, 2007
Brenda Pham

Brenda H. Pham

BRENDA PHAM
PRIMARY EXAMINER

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :01/19/07;05/10/06;09/01/05;06/13/05;03/25/05;07/27/04;04/16/04.